195620

TAT-02-F-05404

SITE SAFETY PLAN

Project Name: Tidewater Baling Site

26 St. Charles Street

Newark, Essex County, New Jersey

ERCS Delivery Order #: 0102-02-006

TAT Technical Direction Document #: 02-8907-25

U.S. EPA Site I.D.#: E004N

Prepared in Conjunction With

The U.S. Environmental Protection Agency,

Emergency and Remedial Response Division,

and

Roy F. Weston, Inc.

FOR:

The U.S. Environmental Protection Agency

Region II - Removal Action Branch

Adopted By: George Press Date: 8-16-89

For STD Engineering

Adopted By: William Kowalski, RSO Date: 8/7/89

For Roy F. Weston, Inc.

Adopted By: Eugene Domanski, OSC Date: 8/7/89

For U.S. EPA

TABLE OF CONTENTS

9.5 Medical Emergencies
9.6 Fire or Explosion
9.7 Spills, Leaks, or Releases
9.8 Evacuation Routes

MANDATORY ATTACHMENTS

- ATTACHMENT A - SITE SAFETY PLAN AMENDMENTS
- ATTACHMENT B - MAPS
- ATTACHMENT C - COLD STRESS
  OR
- ATTACHMENT D - HEAT STRESS
- ATTACHMENT Z - SITE SAFETY PLAN ACKNOWLEDGMENT FORM

OPTIONAL ATTACHMENTS

- OSHA GUIDANCE AND REGULATIONS
- IDENTIFICATION, HAZARDS AND TREATMENT OF LYME DISEASE
- CONFINED SPACE ENTRY PROCEDURES
- CHEMICAL HAZARD INFORMATION (MSDS SHEETS)
- LIQUID TRANSFER SOP
- DRUM HANDLING SOP
- DRUM SAMPLING SOP
- DRILL RIG SOP
- SITE ENTRY SOP
- EXCAVATION SOP
- LEVEL A DECON PROCEDURES
- DEMOLITION SOP
- HAZARDOUS WASTE STORAGE SOP
- TRUCK LOADING SOP
- SOIL SAMPLING SOP
- LIQUID SAMPLING SOP

GLOSSARY OF ACRONYMS

ANSI	- AMERICAN NATIONAL STANDARDS INSTITUTE
APR	- AIR PURIFYING RESPIRATOR
ACGIH	- AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS
CFR	- CODE OF FEDERAL REGULATIONS
CGI	- COMBUSTIBLE GAS INDICATOR
CSEP	- CONFINED SPACE ENTRY PERMIT
ERCS	- EMERGENCY RESPONSE CLEAN-UP SERVICES
HNU-PID	- HNU PHOTOIONIZATION DETECTOR
IDLH	- IMMEDIATELY DANGEROUS TO LIFE & HEALTH
MREM/hr	- MILI-ROENTGENS EQUIVALENT IN MAN PER HOUR
NIOSH	- NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH
OSC	- ON-SCENE COORDINATOR
OSHA	- OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OVA	- ORGANIC VAPOR ANALYZER
PPM	- PARTS PER MILLION
RM	- RESPONSE MANAGER
SCBA	- SELF-CONTAINED BREATHING APPARATUS
SOP	- STANDARD OPERATING PROCEDURE
SPCC	- SPILL PREVENTION CONTROLS & COUNTERMEASURES
TAT	- TECHNICAL ASSISTANCE TEAM
TLV	- THRESHOLD LIMIT VALUE
U.S. EPA	- U.S. ENVIRONMENTAL PROTECTION AGENCY

INTRODUCTION AND SITE ENTRY REQUIREMENTS

This document describes the health and safety guidelines developed for this project to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes. The procedures and guidelines contained herein were based upon the best available information at the time of the plan's preparation. Specific requirements will be revised when new information is received or conditions change and a safety plan modification is necessary to ensure the safety of workers or the public. A written amendment will document all changes made to the plan. Amendments to this plan are included in Attachment A. Where appropriate, specific OSHA standards or other guidance will be cited and applied.

DAILY SAFETY MEETINGS

Daily safety meetings will be held at the start of each shift to ensure that all personnel understand site conditions and operating procedures, to ensure that personal protective equipment is being used correctly and to address worker health and safety concerns.

SITE SAFETY PLAN ACCEPTANCE ACKNOWLEDGMENT

The OSC or designated representative shall be responsible for informing all individuals entering the exclusion zone of the contents of this plan and ensuring that each person signs the Safety Plan Acknowledgment Form in Attachment Z. By signing the Safety Plan Acknowledgment Form, individuals are recognizing the hazards present on-site and the policies and procedures required to minimize exposure or adverse effects of these hazards.

TRAINING REQUIREMENTS

All personnel (including visitors) entering the exclusion zone must have completed training requirements for hazardous waste site work in accordance with OSHA 29 CFR 1910.120, or be qualified by previous training or experience. Documentation of training requirements is the responsibility of each employer.

MEDICAL MONITORING REQUIREMENTS

All personnel (including visitors) entering the exclusion zone must have completed appropriate medical monitoring requirements required under OSHA 29 CFR 1910.120(f). Documentation of medical monitoring is the responsibility of each employer. If there are additional medical monitoring requirements for this site, evidence of compliance must also be included.

FIT TESTING REQUIREMENTS

All personnel (including visitors) entering the exclusion zone using a full-face negative pressure respirator must have successfully passed a qualitative respirator FIT test in accordance with OSHA 29 CFR 1910.1025; 1926.58; or, ANSI within the last 12 months. Documentation of FIT testing is the responsibility of each employer. If applicable, quantitative FIT testing is required for the use of negative pressure respirators for protection against airborne asbestos fibers and lead.

1.0 SITE BACKGROUND AND SCOPE OF WORK

1.1 ROLES AND RESPONSIBILITIES

On-Scene Coordinator (OSC):

The OSC, as the representative of the U.S. EPA, is responsible for overall project administration and for coordinating health and safety standards for all individuals on-site at all times. All applicable OSHA standards shall be applied. However, each contractor (as an employer under OSHA) is also responsible for the health and safety of its employees. If there is any dispute with regards to health and safety, the following procedures shall be followed:

1) Attempt to resolve the issue on-site; and,

2) If the issue cannot be resolved, on-site personnel shall consult off-site supervisors for assistance and the specific task operation in dispute shall be discontinued until the issue is resolved.

Response Manager (RM):

The Response Manager, as the field representative for the ERCS clean-up contractor, has the responsibility for fulfilling the terms of the delivery order. The RM must oversee the project and ensure that all technical, regulatory and safety requirements are met. It is the RM's responsibility to communicate daily with the OSC regarding site clean-up progress and any problems encountered.

Technical Assistance Team (TAT):

The Technical Assistance Team is responsible for providing the OSC with assistance and support in regards to all technical, regulatory and safety aspects of site activity. The TAT is also available to advise the OSC on matters relating to sampling, treatment, packaging, labeling, transport, and disposal of hazardous materials, but is not limited to the above-mentioned.

1.2 Key Personnel

U.S. EPA On-Scene Coordinator (OSC):	Eugene Dominach Raritan Depot Woodbridge Avenue Edison, New Jersey 08837 (201) 321-6666
Alternate OSC:	Daniel Harkay (201) 321-6614
Principle ERCS Contractor:	S & D Engineering Services 171 Essex Avenue Metuchen, New Jersey 08840 (201) 549-8778
Response Manager (RM):	George Press
Subcontractors:	
Site Health & Safety Officer:	OSC
Alt. Health & Safety Officer:	Peter Di Pasca
Technical Assistance Team (TAT):	Roy F. Weston, Inc., 1090 King Georges Post Road Suite 201 Edison, New Jersey 08837 (201) 225-6116
TAT Representatives:	Peter Di Pasca
Other:	

1.3 Site Background

The Tidewater Baling site has been so named due to the proximity of the Tidewater Baling Corporation, a scrap metal baling facility adjacent to the site in the Ironbound section of Newark. Roughly 15 acres in size, the site emcompasses the Ironbound Recreational Center and a low-lying marsh area bordered by Tidewater Baling and a Conrail spur. The site is located in an urban industrial neighborhood inhabited by several thousand people.

The recreation center, built in 1968, is situated on property formerly owned by the Celanese Corporation. Celanese donated the land to the City of Newark to be developed for recreational use. It is suspected that many of the materials from the former facility, including hazardous chemicals, were buried on-site. Evidence was found when the city unearthed buried drums during excavation for a swimming pool in the southeast corner of the site.

The low-lying marsh area at the northern end of the recreational center has been an area of concern for several years. During times of heavy rain, uncontrolled runoff from the Tidewater Baling and Conrail properties enters the marsh area. As a result, the marsh area has become contaminated with PCBs and heavy metals which can be linked to Tidewater Baling and possibly Conrail. Inspections by NJDEP have determined that drums and transformers were among the materials being baled at Tidewater. In response to an NJDEP directive to remedy the facility's drainage problems, the facility owners have done little more than dig unlined collection pits and place sorbent pads along the flow path of the runoff. Consequently, the marsh area continues to receive contaminated runoff from the Tidewater Baling facility.

Despite previous efforts by NJDEP and the City of Newark to secure the marsh area with fencing and PCB warning signs, neighborhood residents have continuously used the area as a "short-cut" between the residential and industrial sections of Ironbound. The fencing has been torn down in several sections, and only a few warning signs remain.

The Tidewater Baling site was submitted by NJDEP to EPA for CERCLA Removal Action consideration on February 2, 1989. During a preliminary assessment by TAT in May, 1989, Tidewater Baling's poor housekeeping practices were confirmed by the widespread evidence of oil-contaminated soil. Soil, aqueous, and oil samples were taken from both Tidewater's property and the marsh area, and analysis of these samples revealed the presence of Aroclor 1248 and 1254, and heavy metals such as arsenic, cadmium, chromium, and lead.

1.4 Scope of Work for ERCS Contractor

Under this initial phase of work to be performed, three tasks are to be addressed. The subcontractor shall erect a fence around the exclusion zone as directed by EPA. When the subcontractor prepares to work on the northern side of the hot zone, the ERCS contractor shall provide plastic sheeting (visqueen) to cover any potentially contaminated soil. In conjuction with the fence, the ERCS contractor shall cut down any small trees and brush that are located on the fence line. The ERCS contractor shall also remove the top layer of soil from the southern fence line. This soil shall be used to build an earthen dam on the western side of the site to prevent run-off from entering nearby playing fields. Any soil that is removed from the southern fence line will be replaced with clean soil or sand.

1.5 Scope of Work for TAT

TAT will maintain site logs and assist EPA in the areas of safety, regulations, sampling, protocol and disposal. TAT will perform air monitoring in the exclusion and clean zones as conditions dictate.

2.0 TASK SAFETY AND HEALTH RISK ANALYSIS

This Hazard Assessment identifies the general hazards associated with specific site operations and presents an analysis of documented or potential chemical hazards that exist at the site. Every effort must be made to reduce or eliminate these hazards. Those which cannot be eliminated must be guarded against by use of engineering controls and/or personal protective equipment.

2.1 Activity Specific Hazards and SOPs

2.1.1 Hazards and SOPs Associated with the Erection of the Fence:

Soil sampling has determined the presence of PCBs and heavy metals in the soil. In order to ensure that potential PCB-contaminated soil does not migrate from the site area, fencing crew members will be required to wear a modified level D work uniform, which will consist of a dust mask, paper tyvek, and disposable booties. In addition, personnel need to be aware of physical hazards such as pinch points in machinery and tools, slipping, tripping, falling, insect bites (in particular, ticks), and overhead utilities.

2.1.2 Hazards and SOPs Associated with the Cutting of Small Trees & Brush and the Building of Earthen Dam:

The main hazard associated with these tasks will be the possible generation of contaminated dusts. Conditions are the same as noted in Section 2.1.1 for pollutants in this area.

Personnel involved in these tasks will wear a level C work uniform if the soil is dry and dusty, or a modified level D work uniform if the soil is moist or wet. In addition to the physical hazards noted above, personnel must be aware and safety-conscious around chain saws, "weed wackers", heavy equipment, power motors, and backhoes.

2.2 General Site Hazards

Heat Stress - When the temperature exceeds 70°F and personnel are wearing protective clothing, a heat stress monitoring program shall be implemented as appropriate. Employees shall have access to break periods and drinking water as necessary. Heat stress is discussed in detail in Attachment D.

Eye Wash Protection - All operations involving the potential for eye injury, splash, etc., must have approved eye wash units locally available as per 29 CFR 1910.151 (c).

Fire Protection/Fire Prevention - Operations involving the potential for fire hazards shall be conducted in a manner as to minimize the risk. Non-sparking tools and fire extinguishers shall be used or available as appropriate. Sources of ignition shall be removed. When necessary, explosion-proof instruments and/or bonding and grounding will be used to prevent fire or explosion.

Utilities - Overhead and underground utility hazards shall be identified and or inspected prior to conducting operations involving potential contact.

2.3 Chemical Hazards

Previous sampling and analytical data have indicated that the following chemical hazards, either documented or potential, exist at the site. Detailed hazard information for these chemicals is available at the command post.

Contaminant	TLV PEL	IDLH	Physical Characteristics	Route of Exposure	Symptoms of Acute Exposure	First Aid	Instrument To Detect
Aroclor 1248 and 1254	0.5 mg/m3	5 mg/m3	light yellow viscous fluid, with a mild hydrocarbon odor.	inh. abs. ing. con.	Irrit. eyes, nose, throat, skin, acne-form dermatitis, jauntis, dark urine.	skin clean with waterless cleaner followed by soap and water. Remove all cont. clothing, flush eyes with water inh - move to fresh air.	
Heavy Metals (Arsenic, cadmium, chromium-T, and lead)	0.05mg/m3 +	28 mg/m3 +	Assume physical characteristics of the medium ie. soil, water.	Inh. Ing. Abs. Con.	Cough, pneumonia, weak, nausea, abdom. pain, insomnia, weight loss	irr. eyes, soap & water wash, rinse Art. Resp. & CPR if nec. seek med. attn.	AA-ICP
Mercury	0.1mg/m3	28 mg/m3	Silver, mobile, odorless liquid	Inh. ing. Con.	Cough, tremor, headache, weak, bronchitis, pneumonia, insomnia, irritability	irrigate, soap/water water	Hg sniffer Hg draeger tube

3.0 TRAINING AND FIT TESTING REQUIREMENTS

Refer to Introduction for Site Entry Requirements.

4.0 PERSONAL PROTECTIVE EQUIPMENT

The following is a brief description of the personal protective equipment which may be required during various phases of the project. The U.S. EPA terminology for protective equipment will be used; Levels A, B, C and D.

Respiratory protective equipment shall be NIOSH-approved and use shall conform to OSHA 29 CFR Part 1910.134 Requirements. Each employer shall maintain a written respirator program detailing selection, use, cleaning, maintenance and storage of respiratory protective equipment.

4.1 Level A Protection Shall Be Used When:

- The extremely hazardous substance requires the highest level of protection for skin, eyes and the respiratory system;
- Substances with a high degree of hazard to the skin are known or suspected;
- Chemical concentrations are known to be above IDLH levels;
- Biological hazards requiring Level A are known or suspected; or,
- Unknown organic vapor concentrations range from 500 - 1,000 ppm.

4.1.1 Level A Protective Equipment at a Minimum Shall Consist of:

- Fully encapsulating exposure suit (selected for resistance to chemical(s) at the site);
- Chemical resistant boot covers worn over safety-toe work boots;
- Chemical resistant outer gloves (disposable);
- Chemical resistant inner gloves (disposable);
- Pressure demand SCBA or airline system with egress bottles;
- Hard-hat;
- Disposable outer suit (optional);
- Use of the "buddy system" for site entry personnel and appropriate back-up support personnel.

4.2 Level B Protection Shall Be Used When:

- o The substance(s) has been identified and requires a high level of respiratory protection but less skin protection;
- o Concentrations of chemicals in the air are IDLH or above the maximum use limit of an APR with full-face mask;
- o Oxygen deficient or potentially oxygen deficient atmospheres (<19.5%) are possible;
- o Confined space entry requires Level B; or,
- o Unknown organic vapor concentrations range from 5 to 500 ppm and a significant skin hazard is not anticipated.

4.2.1 Level B Protective Equipment at a Minimum Shall Consist of:

- o Chemical-resistant coverall: (Type) Saranex/Poly-coated Tyvek;
- o Steel-toe work boots with chemical-resistant overboots or disposable boot covers: (Type) Rubber;
- o Disposable inner gloves, surgical type;
- o Disposable outer gloves: (Type) Neoprene;
- o Supplied air - pressure demand SCBA or airline system with 5-minute egress bottle;
- o Hard hat; and,
- o All joints taped with duct tape.

NOTE: Use of Level B personal protective equipment requires that two (2) persons must be available as backup ready to provide emergency assistance.

4.3 Level C Protection Shall Be Used When:

- o The same level of skin protection as Level B, but a lower level of respiratory protection is required;
- o The types of air contaminants have been identified, concentrations measured, and an air-purifying respirator is available that can remove contaminants;
- o The substance has adequate warning properties and all criteria for the use of APR respirators has been met; and,
- o 1-5 ppm of unknown organic vapors above background levels are anticipated.

4.3.1 Level C Protective Equipment at a Minimum Shall Consist of:

- o Chemical-resistant coveralls: (Type)Saranex Polycoated;
- o Steel-toe work boots with chemical-resistant overboots or disposable boot covers: (Type)Rubber;
- o Disposable inner gloves, surgical type;
- o Disposable outer gloves: (Type)Neoprene/Solvex/Nitrile;
- o Full-face air purifying respirator (APR);

- o Chemical cartridge or canister type: Organic vapors, dusts, mists;
- o Hard hat; and,
- o All joints taped with duct tape.
- o Note tyvek maybe substitued as coveralls when only a dust contaminant is present.
- o Note surgical gloves maybe substituted as disposable outer gloves when only a dust contaminate is present.

4.4 Level D Protection Shall Be Used When:

- o The atmosphere contains no known hazard; and,
- o Work functions preclude splashes, immersion or the potential for unexpected inhalation of, or contact with, hazardous concentrations of harmful chemicals.

4.4.1 Level D Protection Equipment at a Minimum Shall Consist of:

- o Standard work uniform or coveralls;
- o Safety-toe work boots;
- o Gloves as needed;
- o Safety glasses;
- o Splash shield as needed; and,
- o Hard-hat.

4.5 Safety Equipment Which May Be Required For Specific Tasks:

- o Chemical-resistant aprons;
- o Acid suits;
- o Goggles;
- o Face shields;
- o Five-minute escape device;
- o Welders goggles or shields; and,
- o Hearing protection.

4.6 Activity Specific Levels of Protection:

The required level of protection is specific to the activity being conducted. At this site the minimum levels of protection are as follows:

Activity	Level of Protection	Special Requirements
Fence Erection	Modified D	Disposable Booties, Tyvek and Dust Mask when soil is moist or covered with visqueen or sand
Tree & Brush Cutting, Earthen Dam Building	C	When soil is dry or dusty
	Modified D	Disposable Booties, Tyvek and Dust Mask when soil is moist or wet

5.0 MEDICAL MONITORING REQUIREMENTS

Refer to Introduction for Site Entry Requirements.

6.0 AIR MONITORING AND ACTION LEVELS

According to 29 CFR 1910.120 (h), air monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection needed on-site.

6.1 Routine Air Monitoring Requirements:

- Upon initial entry to rule out IDLH conditions;
- When the possibility of an IDLH condition or flammable atmosphere has developed;
- When work begins on a different portion of the site;
- Contaminants other than those previously identified are being handled;
- A different type of operation is initiated;
- Employees are handling leaking drums or containers or working in areas with obvious liquid contamination; and,
- Continuously during confined space work.

Air monitoring will consist at a minimum of the criteria listed below. All air monitoring data will be documented and submitted to the OSC and available in the command post site files for

review by all interested persons. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturer's specifications.

6.2 Site Specific Air Monitoring Requirements:

Instrument	Compounds To Detect	Frequency	Comments/ Action Level
Combustible Gas Indicator (CGI)	Explosive Flammable Atmospheres	Daily prior to work start	>25% LEL in breathing zone Leave area immed.
Oxygen Meter	Oxygen	Daily prior to work start	<19.5% wear SCBA CGI readings not valid 19.5%-25% normal ambient air
Radiation Meter	Radiation	Upon discovery of any new found materials	0.01-0.02 MREM/hr average background < 2 MREM/hr continue investigation with caution > 2 MREM/hr potential radiation hazard - continue only on advice of health physician
HNU-PID OVA	Organic vapors and gases	Daily prior to work start Periodic through the day Upon major disturbances of soil	>5 ppm upgrade PPE for unknowns Level B for knowns >500 ppm upgrade to Level A

7.0 SITE CONTROL AND STANDARD OPERATING PROCEDURES

7.1 Work Zones:

The primary purpose for site controls is to establish the hazardous area perimeter, to reduce migration of contaminants into clean areas and to prevent access or exposure to hazardous materials by unauthorized persons. At the end of each workday, the site should be secured or guarded, to prevent unauthorized entry. Site work zones will include:

7.1.1 Exclusion Zone:

The exclusion zone will be the "hot-zone" or contaminated area inside the site perimeter. Entry to and exit from this zone will be made through a designated point and all personnel will be required to sign the hot zone entry/exit log located at the decon area. Appropriate warning signs to identify the exclusion zone should be posted (i.e. "DANGER - AUTHORIZED PERSONNEL ONLY", "PROTECTIVE EQUIPMENT REQUIRED BEYOND THIS POINT", etc.) Exit from the exclusion zone must be accompanied by personnel and equipment decontamination as described in Section 8.0.

7.1.2 Decontamination Zone:

The decontamination zone will provide a location for removal of contaminated personal protective equipment and final decontamination of personnel and equipment. All personnel and equipment should exit only via the decon area. A separate decontamination area will be established for heavy equipment.

7.1.3 Clean Zone:

This uncontaminated support zone or clean zone will be the area outside the exclusion and decontamination zones and within the geographic perimeters of the site. This area is used for staging of materials, parking of vehicles, office and laboratory facilities, sanitation facilities, and receipt of deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, etc., who will not necessarily be permitted in the exclusion zone. There will be one controlled entry/exit point from the clean zone to the decontamination zone.

All personnel arriving in the support zone should upon arrival, report to the command post and sign the site entry/exit log.

A map of the work zones for this site is found in Attachment B.

7.2 General Field Safety and Standard Operating Procedures:

- The "buddy system" will be used at all times by all field personnel. No one is to perform field work alone. Maintain visual, voice or radio communication at all times.

- Whenever possible, avoid contact with contaminated (or potentially contaminated) surfaces. Walk around (not through) puddles and discolored surfaces. Do not kneel on the ground or set equipment on the ground. Stay away from any waste drums unless necessary. Protect equipment from contact by bagging.

- Eating, drinking, or smoking is permitted only in designated areas in the support zone.

- Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activities.

- Beards or other facial hair that interferes with respirator fit are prohibited.

- All equipment must be decontaminated or discarded upon exit from the exclusion zone.

- All personnel exiting the exclusion zone must go through the decontamination procedures described in Section 8.0.

- Safety Equipment described in Section 4.0 will be required for all field personnel unless otherwise approved by the Site Health and Safety Officer.

- Practice administrative hazard control for all site areas by restricting entrance to exclusion zones to essential personnel and by using operational SOPs.

8.0 DECONTAMINATION PROCEDURES

During the fencing phase of this site cleanup, only disposable PPE will be utilized and formal decon procedures are not anticipated.

A segregated equipment drop will be instituted so that equipment can be cleaned at the end of each day. Also a disposable PPE station will be set up where personnel will carefully remove all disposable clothing at the end of a shift. Disposable clothing shall be bagged, sealed and properly disposed of.

9.0 EMERGENCY RESPONSE PLAN

It is essential that site personnel be prepared in the event of an emergency. Emergencies can take many forms; illnesses or injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather. The following sections outline the general procedures for emergencies. Emergency information should be posted as appropriate.

9.1 Emergency Contacts:

Fire: 201-733-7400 or 911, Newark

Police: 201-733-6290 or 911, Newark

Ambulance: 911, St. James Hospital, Newark

Hospital: St. James Hospital, Newark

Address: 155 Jefferson St., Newark, NJ 07105

Telephone: 201-589-1300 Chemical Trauma Capabilities? Yes

Poison Control Center: 1-800-962-1253

Directions from Site to Hospital (See Map in Attachment B):

From Site: Travel Southeast to Komorn St. Turn **Right** onto Komorn St. and continue to Magazine St. Turn **Right** onto Magazine St. and continue to Marne St. Turn **Left** onto Marne St. and continue to Wilson Ave. Turn **Right** onto Wilson Ave. and continue to Lafayette St. Turn **Left** onto Lafayette St. and continue to Congress St. Turn **Left** on Congress St. Emergency room entrance is on left-hand side of road.

NOTE: Maps and directions to the hospital will be posted at the EPA and TAT vehicles.

The route to the hospital was verified by Peter Di Pasca on August 1, 1989. Distance from site to hospital is 1.3 miles. Approximate driving time is 5 minutes.

The following individuals have been trained in CPR and First Aid:

Peter Di Pasca

9.2 Additional Emergency Numbers:

Chemtrec	(800)-424-9300
TSCA Hotline	(800)-424-9065, (202) 544-1401
ATSDR	(Day) (404) 329-3311
	(Night) (404) 566-7777
AT & F (Explosives Info.)	(800) 424-9555
National Response Center	(800) 424-8802
Weston Medical Emergency Service	(513) 421-3063
Weston 24 Hour Hotline	(215) 524-1925, 1926
Pesticide Information Service	(800) 845-7633
EPA ERT Emergency	(201) 321-6660
RCRA Hotline	(800) 424-9346
CMA Chemical Referral Center	(800) 262-8200
National Poison Control Center	(800) 942-5969
U.S. DOT	(202) 366-0656 (Day only)
	(202) 426-2075 (Hotline)
Weston TAT Office	(201) 225-6116
TAT ZPMO	(201) 524-1160
U.S. EPA Region II R&P Branch Hotline	(201) 548-8730

9.3 Emergency Equipment Available On-site:

Communications Equipment	Location
Public Telephones:	N/A
Private Telephones:	N/A
Mobile Telephones:	201-513-6472 TAT Vehicle
Two-Way Radios:	N/A

Medical Equipment

First Aid Kits: In EPA and TAT Vehicles

Inspection Date: _____ By: _____

Stretcher/Backboard: _____

Eye Wash Station: _____

Oxygen: N/A

Safety Shower: N/A

Fire-Fighting Equipment

Fire Extinguishers: In EPA and TAT Vehicles

Inspection Date: _____ By: _____

Other: _____

Spill or Leak Equipment

Absorbent Boom/Pads: _____

Dry Absorbent: _____

9.4 Project Personnel Responsibilities During Emergencies:

ON-SCENE COORDINATOR (OSC)

As the administrator of the project, the OSC has primary responsibility for respcnding to and correcting emergency situations. the OSC must:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, up-grading or down-grading the level of protective clothing and respiratory protection, or total evacuation and securing of the site.
- Take appropriate measures to protect the public and the environment including isolating and securing the site, preventing run-off to surface waters and ending or controlling the emergency to the extent possible.
- Ensure that appropriate Federal, State and local agencies are informed, and emergency response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. In the event of an air release of toxic materials, the local authorities should be informed in order to assess the need for evacuation. In the event of a spill, sanitary districts and drinking water systems may need to be alerted.
- Ensure that appropriate treatment or testing for exposed or injured personnel is obtained;
- Determine the cause of the incident and make recommendations to prevent the recurrence; and,
- Ensure that all required reports have been prepared.

RESPONSE MANAGER (RM)

The RM must immediately report emergency situations to the OSC, take appropriate measures to protect site personnel and assist the OSC as necessary in responding to and mitigating the emergency situation.

TECHNICAL ASSISTANCE TEAM (TAT)

The TAT must immediately report emergency situations to the OSC, take appropriate measures to protect site personnel and assist the OSC as necessary.

9.5 Medical Emergencies:

Any person who becomes ill or injured in the exclusion zone must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket.) First aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must immediately be reported to the OSC.

Any person being transported to a clinic or hospital for treatment should take with them information on the chemical(s) they have been exposed to at the site. This information is included in Table 2.3.

Any vehicle used to transport contaminated personnel, will be tested and cleaned as necessary.

9.6 Fire or Explosion:

In the event of a fire or explosion, the local fire department should be summoned immediately. Upon their arrival, the OSC or designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site.

If it is safe to do so, site personnel may:

- Use fire fighting equipment available on site to control or extinguish the fire; and,
- Remove or isolate flammable or other hazardous materials which may contribute to the fire.

9.7 Spill or Leaks:

In the event of a spill or a leak, site personnel will:

- Inform their supervisor immediately;
- Locate the source of the spillage and stop the flow if it can be done safely; and,
- Begin containment and recovery of the spilled materials.

9.8 Evacuation Routes and Resources:

Evacuation routes have been established by work area locations for this site. Evacuation should be conducted immediately, without regard for equipment under conditions of extreme emergency. During most of the fence installation, any available access point may be used as an evacuation route. However, during the final stage of the operation, the proposed gate which will be constructed by the running track will be used as the evacuation route.

- Evacuation notification will be a continuous blast on an air horn, vehicle horn, or by verbal communication via radio.
- Keep upwind of smoke, vapors or spill location.
- Exit through the decontamination corridor if possible.
- If evacuation is not via the decontamination corridor, site personnel should remove contaminated clothing once they are in a location of safety and leave it near the exclusion zone or in a safe place.
- The OSC will conduct a head count to insure all personnel have been evacuated safely.
- In the event that emergency site evacuation is necessary, all personnel are to:

  1. escape the emergency situation;
  2. decontaminate to the maximum extent practical; and,
  3. meet at the EPA and TAT vehicles.

- In the event that the EPA and TAT vehicles are no longer in a safe zone, meet at the corner St. Charles and Komorn Streets.

ATTACHMENT A

SITE SAFETY PLAN AMENDMENTS

ATTACHMENT A - SITE SAFETY PLAN AMENDMENTS

SITE SAFETY PLAN AMENDMENT #____: _____

SITE NAME: _____

DATE: _____

TYPE OF AMENDMENT: _____

REASON FOR AMENDMENT: _____

_____

_____

_____

ALTERNATE SAFEGUARD PROCEDURES: _____

_____

_____

_____

_____

REQUIRED CHANGES IN PPE: _____

_____

_____

_____

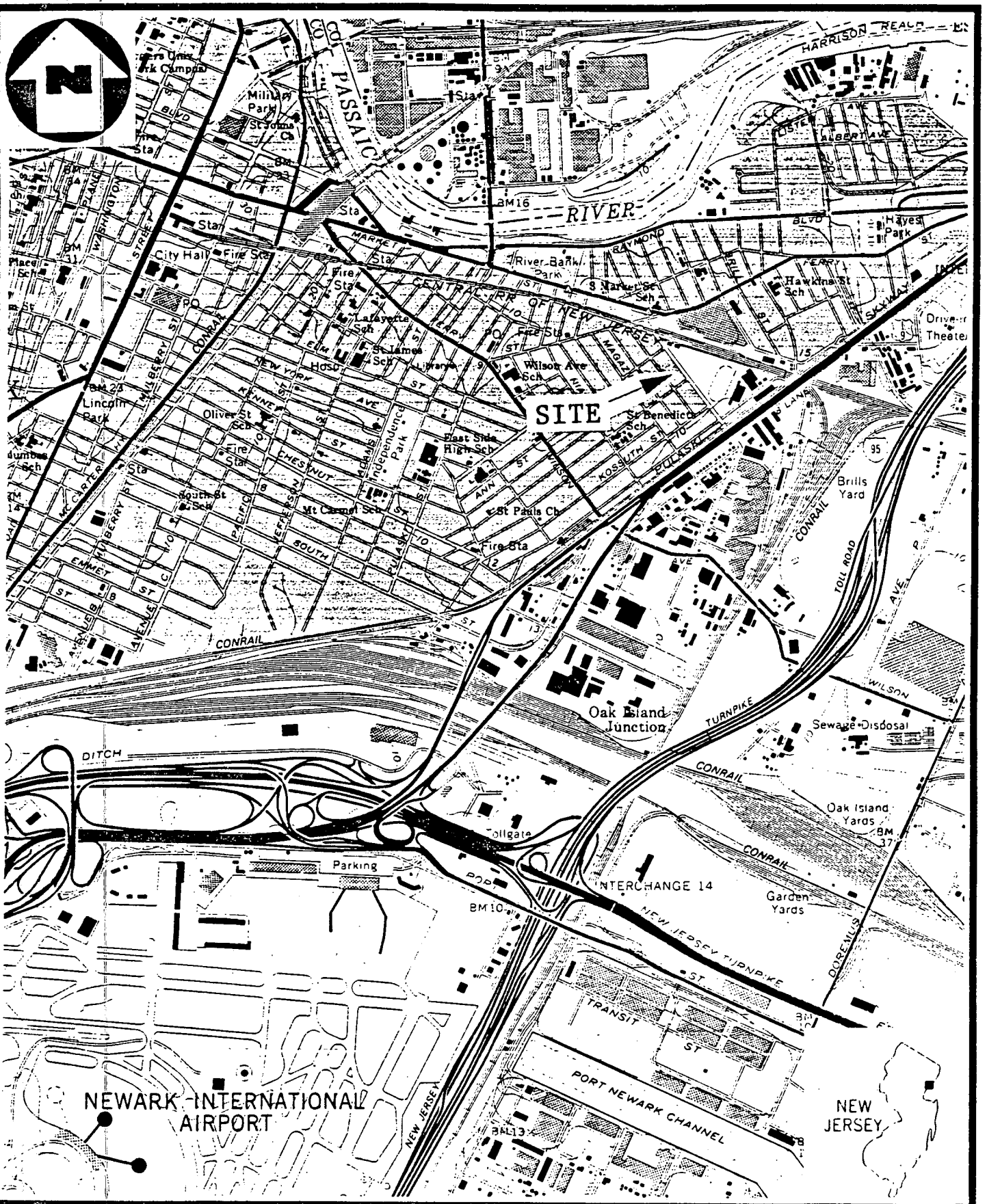
U.S. EPA HSO INFORMED: _____

ERCS CONTRACTOR HSO INFORMED: _____

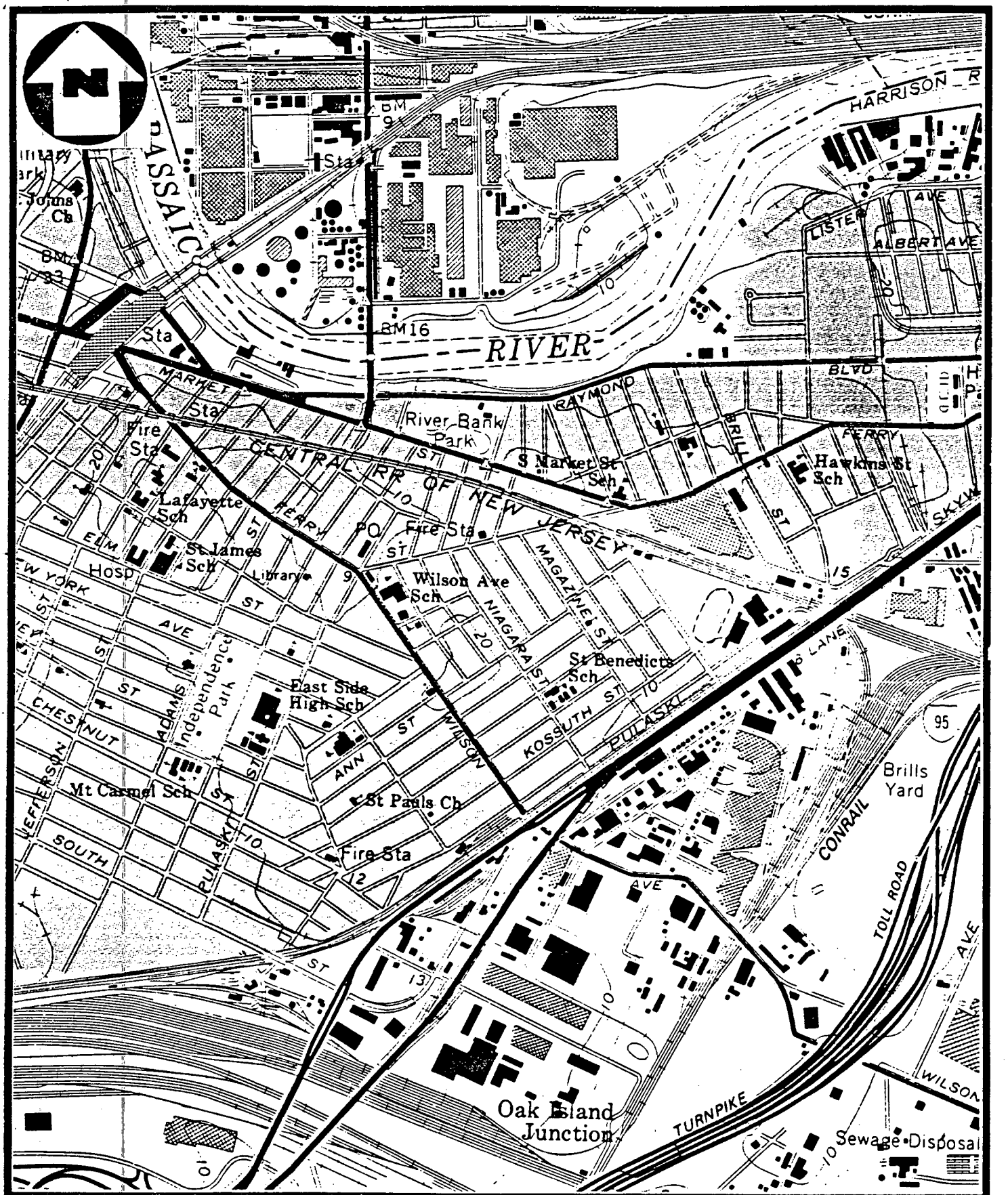
TAT RSO INFORMED: _____

ATTACHMENT B

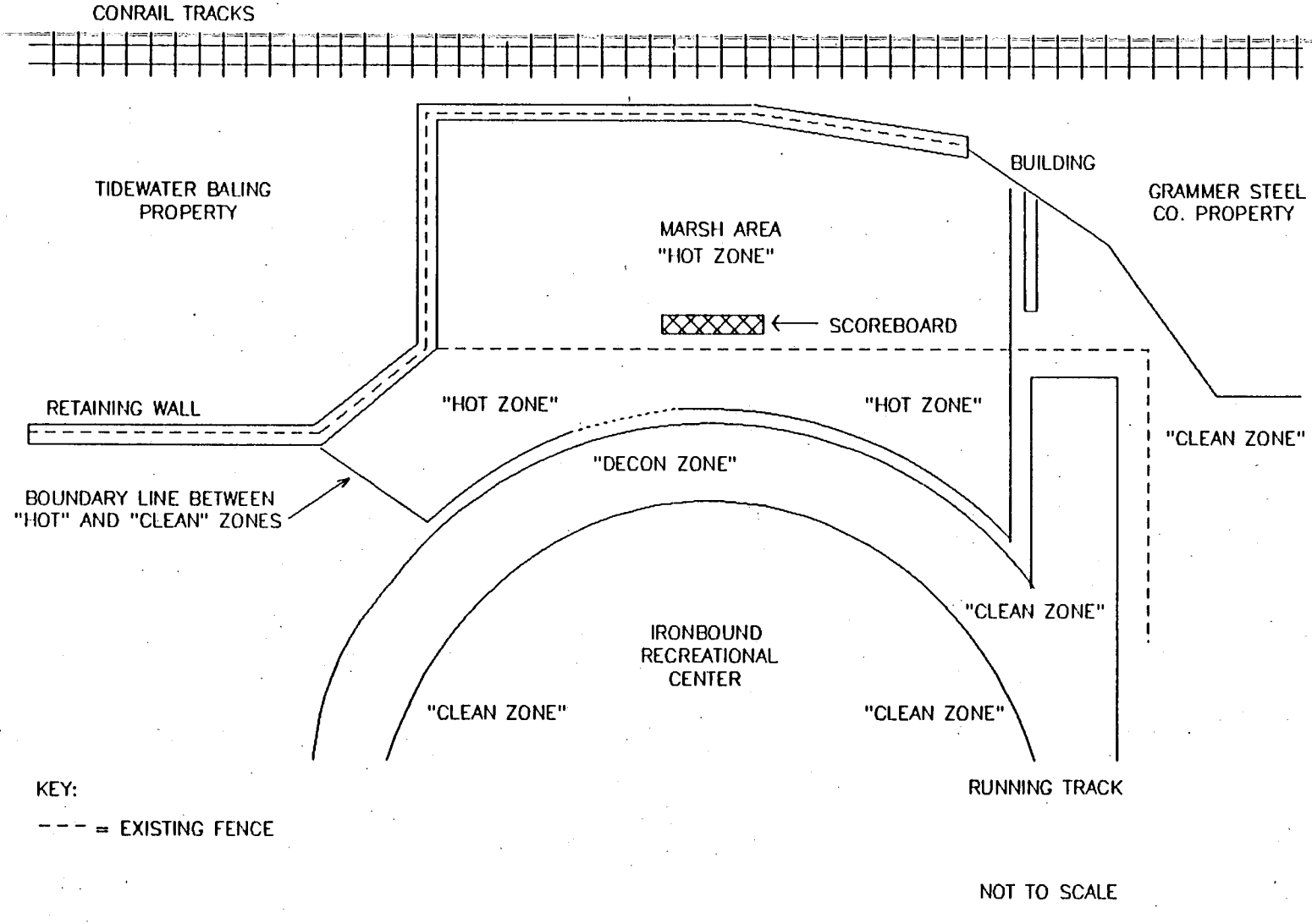
MAPS



WESTON MANAGERS DESIGNERS CONSULTANTS	SPILL PREVENTION & EMERGENCY RESPONSE	**EPA PM** E. DOMINACH	LOCATION MAP
In Association with ICF Technology Inc., C.C. Johnson & Malhotra, P.C., Resource Applications, Inc. and R.E. Sarriera Associates		**TAT PM** P. DI PASCA	TIDEWATER BALING NEWARK, NJ



WESTON	SPILL PREVENTION & EMERGENCY RESPONSE	EPA PM E. DOMINACH	ROUTE TO HOSPITAL
In Association with ICF Technology Inc., C.C. Johnson & Malhotra, P.C., Resource Applications, Inc. and R.E. Sarriera Associates		TAT PM P. DI PASCA	TIDEWATER BALING NEWARK, NJ



WESTON MANAGERS DESIGNERS CONSULTANTS — SPILL PREVENTION & EMERGENCY RESPONSE DIVISION	EPA PM E. DOMINACH	WORK ZONES
In Association with ICF Technology Inc., C.C. Johnson & Associates, Inc., Resource Applications, Inc., Geo/Resource Consultants, Inc., and Environmental Toxicology International, Inc.	TAT PM P. DI PASCA	TIDEWATER BALING NEWARK, NJ

ATTACHMENT D

HEAT STRESS

FROM NIOSH/OSHA/
USCG/U.S. EPA

OCCUPATIONAL SAFETY
AND HEALTH GUIDANCE
MANUAL FOR HAZARDOUS
WASTE SITE ACTIVITIES

OCTOBER 1985

Heat Stress and Other Physiological Factors

Wearing PPE puts a hazardous waste worker at considerable risk of developing heat stress. This can result in health effects ranging from transient heat fatigue to serious illness or death. Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, workload, and the individual characteristics of the worker. Because heat stress is probably one of the most common (and potentially serious) illnesses at hazardous waste sites, regular monitoring and other preventive precautions are vital.

Individuals vary in their susceptibility to heat stress. Factors that may predispose someone to heat stress include:

- Lack of physical fitness.
- Lack of acclimatization.
- Age.
- Dehydration.
- Obesity.
- Alcohol and drug use.
- Infection.
- Sunburn.
- Diarrhea.
- Chronic disease.

Reduced work tolerance and the increased risk of excessive heat stress is directly influenced by the amount and type of PPE worn. PPE adds weight and bulk, severely reduces the body's access to normal heat exchange mechanisms (evaporation, convection, and radiation), and increases energy expenditure. Therefore, when selecting PPE, each item's benefit should be carefully evaluated in relation to its potential for increasing the risk of heat stress. Once PPE is selected, the safe duration of work/rest periods should be determined based on the:

- Anticipated work rate.
- Ambient temperature and other environmental factors.
- Type of protective ensemble.
- Individual worker characteristics and fitness.

Monitoring

Because the incidence of heat stress depends on a variety of factors, all workers, even those not wearing protective equipment, should be monitored.

- For workers wearing permeable clothing (e.g., standard cotton or synthetic work clothes), follow recommendations for monitoring requirements and suggested work/rest schedules in the current American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Values for Heat Stress [11]. If the actual clothing worn differs from the ACGIH standard ensemble in insulation value and/or wind and vapor permeability, change the monitoring requirements and work/rest schedules accordingly [12].

- For workers wearing semipermeable or impermeable* encapsulating ensembles, the ACGIH standard cannot be used. For these situations, workers should be monitored when the temperature in the work area is above 70°F (21°C) [6].

monitor the worker, measure:

- Heart rate. Count the radial pulse during a 30-second period as early as possible in the rest period.

  If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same.

  If the heart rate still exceeds 110 beats per minute at the next rest period, shorten the following work cycle by one-third [12].

- Oral temperature. Use a clinical thermometer (3 minutes under the tongue) or similar device to measure the oral temperature at the end of the work period (before drinking).

  If oral temperature exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third without changing the rest period.

  If oral temperature still exceeds 99.6°F (37.6°C) at the beginning of the next rest period, shorten the following work cycle by one-third [12].

  Do *not* permit a worker to wear a semipermeable or impermeable garment when his/her oral temperature exceeds 100.6°F (38.1°C)[12].

- Body water loss, if possible. Measure weight on a scale accurate to ±0.25 lb at the beginning and end of each work day to see if enough fluids are being taken to prevent dehydration. Weights should be taken while the employee wears similar clothing or, ideally, is nude. *The body water loss should not exceed 1.5 percent total body weight loss in a work day* [12].

Initially, the frequency of physiological monitoring depends on the air temperature adjusted for solar radiation and the level of physical work (see Table 8-10). The length of the work cycle will be governed by the frequency of the required physiological monitoring.

Prevention

Proper training and preventive measures will help avert serious illness and loss of work productivity. Preventing heat stress is particularly important because once someone suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat injuries. To avoid heat stress, management should take the following steps:

- Adjust work schedules:

  Modify work/rest schedules according to monitoring requirements.

  Mandate work slowdowns as needed.

  Rotate personnel: alternate job functions to minimize overstress or overexertion at one task.

  Add additional personnel to work teams.

  Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.

- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.

- Maintain workers' body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat, i.e., 8 fluid ounces (0.23 liters) of water must be ingested for approximately every 8 ounces (0.23 kg) of weight lost. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat [14]. When heavy sweating occurs, encourage the worker to drink more. The following strategies may be useful:

  Maintain water temperature at 50° to 60°F (10° to 15.6°C).

  Provide small disposable cups that hold about 4 ounces (0.1 liter).

  Have workers drink 16 ounces (0.5 liters) of fluid (preferably water or dilute drinks) before beginning work.

  Urge workers to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.

  Weigh workers before and after work to determine if fluid replacement is adequate.

- Encourage workers to maintain an optimal level of physical fitness:

  Where indicated, acclimatize workers to site work conditions: temperature, protective clothing, and workload (see *Level of Acclimatization* at the end of this chapter).

  Urge workers to maintain normal weight levels.

- Provide cooling devices to aid natural body heat exchange during prolonged work or severe heat exposure. Cooling devices include:

  Field showers or hose-down areas to reduce body temperature and/or to cool off protective clothing.

  Cooling jackets, vests, or suits (see Table 8-5 for details).

- Train workers to recognize and treat heat stress. As part of training, identify the signs and symptoms of heat stress (see Table 8-11).

Other Factors

PPE decreases worker performance as compared to an unequipped individual. The magnitude of this effect varies considerably, depending on both the individual and the PPE ensemble used. This section discusses the demonstrated physiological responses to PPE, the individual human characteristics that play a factor in these

*Although no protective ensemble is "completely" impermeable, for practical purposes an outfit may be considered impermeable when calculating heat stress [6].

Table 8-10. Suggested Frequency of Physiological Monitoring for Fit and Acclimatized Workers[a]

ADJUSTED TEMPERATURE[b]	NORMAL WORK ENSEMBLE[c]	IMPERMEABLE ENSEMBLE
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5° - 90°F (30.8° - 32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5° - 87.5°F (28.1° - 30.8°C)	After each 90 minutes of work	After each 60 minutes of work
77.5° - 82.5°F (25.3° - 28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5° - 77.5°F (22.5° - 25.3°C)	After each 150 minutes of work	After each 120 minutes of work

Source: Reference [13].

[a]For work levels of 250 kilocalories/hour.

[b]Calculate the adjusted air temperature (ta adj) by using this equation: ta adj °F = ta °F - [13 x % sunshine]. Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

[c]A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

Table 8-11. Signs and Symptoms of Heat Stress[a]

- Heat rash may result from continuous exposure to heat or humid air.
- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:
  - muscle spasms
  - pain in the hands, feet, and abdomen
- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:
  - pale, cool, moist skin
  - heavy sweating
  - dizziness
  - nausea
  - fainting
- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are:
  - red, hot, usually dry skin
  - lack of or reduced perspiration
  - nausea
  - dizziness and confusion
  - strong, rapid pulse
  - coma

[a]Source: Reference [6].

responses, and some of the precautionary and training measures that need to be taken to avoid PPE-induced injury.

The physiological factors may affect worker ability to function using PPE include:

- Physical condition.
- Level of acclimatization.
- Age.
- Gender.
- Weight.

Physical Condition

Physical fitness is a major factor influencing a person's ability to perform work under heat stress. The more fit someone is, the more work they can safely perform. At a given level of work, a fit person, relative to an unfit person, will have [5,8,15,16]:

- Less physiological strain.
- A lower heart rate.
- A lower body temperature, which indicates less retained body heat (a rise in internal temperature precipitates heat injury).
- A more efficient sweating mechanism.
- Slightly lower oxygen consumption.
- Slightly lower carbon dioxide production.

Level of Acclimatization

The degree to which a worker's body has physiologically adjusted or acclimatized to working under hot conditions affects his or her ability to do work. Acclimatized individuals generally have lower heart rates and body temperatures than unacclimatized individuals [17], and sweat sooner and more profusely. This enables them to maintain lower skin and body temperatures at a given level of environmental heat and work loads than unacclimatized workers [18]. Sweat composition also becomes more dilute with acclimatization, which reduces salt loss [8].

Acclimatization can occur after just a few days of exposure to a hot environment [15,16]. NIOSH recommends a progressive 5-day acclimatization period for the unacclimatized worker before allowing him/her to do full work on a hot job [15]. Under this regimen, the first day of work on site is begun using only 50 percent of the anticipated workload and exposure time, and 10 percent is added each day through day 5 [15]. With fit or trained individuals, the acclimatization period may be shortened 2 or 3 days. However, workers can lose acclimitization in a matter of days, and work regimens should be adjusted to account for this.

When enclosed in an impermeable suit, fit acclimatized individuals sweat more profusely than unfit or unacclimatized individuals and may therefore actually face a greater danger of heat exhaustion due to rapid dehydration. This can be prevented by consuming adequate quantities of water. See previous section on *Prevention* for additional information.

Age

Generally, maximum work capacity declines with increasing age, but this is not always the case. Active, well-conditioned seniors often have performance capabilities equal to or greater than young sedentary individuals. However, there is some evidence, indicated by lower sweat rates and higher body core temperatures, that older individuals are less effective in compensating for a given level of environmental heat and work loads [19]. At moderate thermal loads, however, the physiological responses of "young" and "old" are similar and performance is not affected [19].

Age should not be the sole criterion for judging whether or not an individual should be subjected to moderate heat stress. Fitness level is a more important factor.

Gender

The literature indicates that females tolerate heat stress at least as well as their male counterparts [20]. Generally, a female's work capacity averages 10 to 30 percent less than that of a male [8]. The primary reasons for this are the greater oxygen-carrying capacity and the stronger heart in the male [15]. However, a similar situation exists as with aging: not all males have greater work capacities than all females.

Weight

The ability of a body to dissipate heat depends on the ratio of its surface area to its mass (surface area/weight). Heat loss (dissipation) is a function of surface area and heat production is dependent on mass. Therefore, heat balance is described by the ratio of the two.

Since overweight individuals (those with a low ratio) produce more heat per unit of surface area than thin individuals (those with a high ratio), overweight individuals should be given special consideration in heat stress situations. However, when wearing impermeable clothing, the weight of an individual is not a critical factor in determining the ability to dissipate excess heat.

References

1. NIOSH. 1988. Certified Equipment List as of October 1, 1984. DHHS (NIOSH) No. 85-101. National Institute for Occupational Safety and Health, Cincinnati, OH. Updated annually.

2. Mover, E.S. 1980. Review of influential factors affecting the performance of organic vapor air-purifying respirator cartridges. J. Am. Ind. Hyg. Assoc. 44:46-51.

3. MSHA/NIOSH. Canister bench tests: minimum requirements. 30 CFR Part 11.102-5.

4. Schwope, A.D.; Costas, P.P.; Jackson, J.O.; and D.J. Weitzman. 1985. Guidelines for the Selection of Chemical-Protective Clothing, Second Edition. American Conference of Governmental Industrial Hygienists, Inc. 6500 Lynnway Avenue, Building D-7, Cincinnati, OH 45211.

5. Goldman, R.F. 1970. Tactical Implications of the Physiological Stress Imposed by Chemical Protective Clothing Systems. Army Science Conference. Natick, MA.

6. U.S. EPA. 1984. Standard Operating Safety Guides. Office of Emergency and Remedial Response, Hazardous Response Support Division, Edison, NJ. November, 1984.

7. Home Office. 1974. Breathing Apparatus and Resuscitation. Book IV of Manual of Firemanship. London, England.

8. McArdle, W.D.; Katch, F.I.; and V.L. Katch. 1981. Exercise Physiology: Energy, Nutrition, and Human Performance. Lea and Febiger, Philadelphia, PA.

9. U.S. EPA, Office of Emergency and Remedial Response, Hazardous Response Support Division. 1985. Field Standard Operating Procedures for Site Entry, FSOP #4.

10. NIOSH. 1976. A Guide to Industrial Respiratory Protection. NIOSH (DHEW) 76-189. Cincinnati, OH.

11. American Conference of Governmental Industrial Hygienists. 1985. Threshold Limit Values for Chemical Substances and Physical Agents in the Workplace Environment and Biological Exposure Indices with Intended Changes for 1985-86. Cincinnati, OH.

12. NIOSH. 1981. Chemical Control Corporation, Elizabeth New Jersey. Hazard Evaluation Report TA-80-77-883.

13. Henschel, A. 1985. Memorandum to Sheldon Rabinovitz from Austin Henschel, NIOSH, Cincinnati, OH. June 20, 1985.

14. Goldman, R.F. 1980. Heat Stress in Industrial Protective Encapsulating Garments. Contract deliverable to U.S. Department of Health and Human Services, Order No. 83-211.

ATTACHMENT Z

SITE SAFETY PLAN

ACKNOWLEDGEMENT FORM

SITE SAFETY PLAN ACKNOWLEDGEMENT FORM

I have been informed and understand and will abide by the procedures set forth in the Safety and Health Plan and Amendments for the Tidewater Baling site.

Printed Name	Signature	Representing	Date